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# CURRENT LITERATURE.

## BOOK REVIEWS.

### Latex and mucilage.

TO THE already extensive literature of the laticiferous tissues, Molisch contributes an important addition,<sup>1</sup> differing from its predecessors in giving chief attention to the constitution, both organic and chemical, of the latex itself. In his investigations he used living material and fresh latex, as well as that which had been fixed and stained. Molisch has confirmed and extended the earlier observations of Treub, Johow, and Schmidt on the existence of a plasmic membrane and nuclei in the latex tubes, for demonstrating which he recommends *Euphorbia splendens* and *Poinsettia pucherrima*. He finds the membrane lining the latex vessel and constituting an inner living tube within which the latex is formed like the cell sap. Special examination of the nuclei shows that some nuclei are very different from those of ordinary plant cells, having characters not before known in nuclei of any plant or animal. Molisch calls them *Blasenkerne*. The granular nucleus seems to lie centrally or excentrically in a relatively large globular vacuole, but really the vacuole is in the nucleus, the nuclear sap filling the space between the nuclear material and the membrane. Nuclei of somewhat irregular form are also present. Various phenomena lead to the conclusion that the nuclear membrane is an independent, clearly differentiated organ.

Besides the nuclei there are imbedded in the plasma leucoplasts of different kinds. Some form the elongated starch grains; others ("proteino-plasts") produce proteid granules, a phenomenon which has recently been observed also by Heinricher in *Lathraea*. Crystals of proteids or proteid-like substances are also produced, not anywhere in the contents of the latex tubes, but by the agency of special plastids or of vacuoles. Molisch also finds elaioplasts and vacuoles responsible for the formation of oil drops.

Into the details of the chemistry of the latex we cannot follow the author. The latex he finds usually acid, rarely neutral, and never alkaline; calcium salts and chlorids are variable in amount; magnesium compounds are abundant and sometimes accumulate in extraordinary quantity; proteids and carbohydrates are so abundant that one must look upon the latex tubes as special reservoirs of these foods.

As the latex is an emulsion, the fine division and consequently great surface

<sup>1</sup> MOLISCH, HANS: Studien über den Milchsaft und Schleimsaft der Pflanzen. 8vo, pp. viii + 111, *figs.* 33. Jena: Gustav Fischer. 1901. *M* 4.

of its constituents probably facilitates the absorption of gases and metabolism generally, to an extent hitherto unnoticed. On the rôle of the latex the author promises further publication.

Because the mucilage tubes of the Liliaceae, Amaryllidaceae, and Commelynaceae are analogous to the latex tubes, Molisch has investigated them. He finds extraordinary nuclei in some of them—filaments  $1500\mu$  long by  $0.1-0.3\mu$  in diameter; also proteid crystalloids, starch, glucose, and tannins, as in latex tubes, besides a new body, luteofilin, which occurs as sphere crystals in the mucilage of many monocots.—C. R. B.

#### A manual of bacteriology.

IN 1897, Frederick D. Chester published in the *Annual Report* of the Delaware Agriculture Experiment Station a preliminary arrangement of the species of the genus *Bacterium*. This work, rearranged and enlarged to include all the groups of bacteria, has now appeared in a valuable *Manual of determinative bacteriology*.<sup>2</sup> While not so voluminous as Migula's great work on systematic bacteriology, this book is by far the most complete classification in English, comprising descriptions of some 780 forms. The system of classification adopted, by means of which related forms may be readily traced out or new species identified, is the same as that first proposed by Migula in Engler and Prantl's *Natürlichen Pflanzenfamilien* (1896), with some minor modifications. In the synopsis of *Bacterium* and *Bacillus*, coloration by Gram's method is used as an important differential test. This might be open to criticism, for variation of the Gram staining reaction within a so-called group is well known. It was brought out in a recent study of *B. pyocyaneus* by Roger C. Perkins as follows: "In reactions of the various organisms to Gram's stain, my results did not coincide with those of Jordan and Ruzicka, who note complete decolorization in every case. Of ten varieties studied in this present series, seven decolorized uniformly and regularly when treated by this method, but three retained the color at every trial."<sup>3</sup> On the other hand, Chester has given a subordinate place to formation of gas in the different sugar bouillons, a comparatively constant reaction.

In the section devoted to the terminology of descriptive bacteriology, the author has arranged and illustrated an excellent series of simple terms, capable of expressing definitely in one word the meaning of several sentences of the old style verbose and figurative cultural description. These terms are interesting additions to the bacteriological vocabulary. The criticism of species nomenclature is a point well taken, although no adequate suggestion is made as to how names of forms so closely related as the various kinds of

<sup>2</sup>CHESTER, FREDERICK D., *A manual of determinative bacteriology*. 8vo, pp. vi + 401, figs. 13. New York: The Macmillan Co. 1901. \$2.60.

<sup>3</sup>Jour. Med. Research 281. 1901.